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SIGNALLING BETWEEN ATM AND LOCAL AREA NETWORKS

The present invention relates to a method for setting up or releasing a connection between a first terminal connected to a local area network and a second terminal connected to an asynchronous time division multiplexing network, hereafter abbreviated by and referred to as ATM-network, both networks being intercoupled by means of a network termination apparatus, as is further described in the non-characteristic part of claims 1,2 and 8, whereby these respective claims refer to the method either being initiated from the network termination apparatus, or from a terminal connected to the local area network or the ATM network.

The present invention also relates to a first terminal for being connected to a local area network as is described by the non-characteristic part of claim 13, to a predetermined terminal for being connected to a local area network as is referred to by the non-characteristic part of claim 14 and to a network termination apparatus for being coupled between this ATM network and this local area network, as is further described in the non-characteristic part of claims 23 and 26, for realising the respective above mentioned variants of the method.

Such a method, as well as such a network termination apparatus, are already known in the art, e.g. from the "US patent NR 5528590 : ATM-UNI-LAN Communication method and apparatus". Therein, a method of communication between an ATM-UNI ATM network and a local area network, abbreviated by LAN, is presented, whereby in case of data transmission from the LAN side towards the ATM-UNI, reference is made in column 1, line 35 to a connection request generated upon arrival of a data frame from a LAN terminal, requesting a controller within a communication apparatus for a connection. This prior art communication apparatus corresponds to the network termination apparatus referred to in the introductory part of claims 1,2,8,13,14 and 23 and 26 of this invention. Although not explicitly mentioned in the prior art document, this connection request is generated within the communication apparatus, since it is based upon incoming data frames transmitted from a LAN terminal to that

communication apparatus. For prior art connections to be set up from a terminal connected to the ATM network to a terminal connected to the LAN network, in the prior art document a call set-up request from the ATM-UNI network is transmitted towards this communication apparatus and as well applied to the 5 controller of this communication apparatus as is mentioned in column 1, lines 41-42. The prior art communication apparatus, includes, besides the controller, also a control unit, which operate in association with each other, to perform call processing, as stated in column 5, lines 55-60. This means that they perform the necessary signalling function for setting up the connection with the terminal 10 connected to the ATM network. In either case, for connections to be set up from the LAN side towards the ATM or vice-versa, the prior art communication apparatus, corresponding to the network termination apparatus referenced to in the introductory part of claims 1,2,8,13,14, 23 and 26, thus needs to include the necessary processing devices for terminating an ATM signalling protocol. 15 Similarly, for releasing a connection between a terminal connected to the LAN network and a terminal connected to the ATM network, the communication apparatus of the prior art, corresponding to the network termination apparatus, also needs to perform the ATM signalling protocol for releasing this connection.

Since such a network termination apparatus is physically located at the 20 customer's premise, cost and maintenance are important, which in case of the prior art solution, might become an issue. Therefore a method is needed whereby the complexity and consequently the cost and maintenance cost, of the network termination apparatus is reduced.

An object of the present invention is therefore to provide a method for 25 setting up or respectively releasing a connection between a terminal connected to one network type, local area or ATM, and another terminal connected to the other network type, as well as a network termination apparatus intercoupling both networks, of the above known type, but whereby the complexity of this network termination apparatus is significantly reduced with respect to the prior 30 art solution.

According to the invention, this object is achieved due to the fact that said method is further realised as is described in the characteristic parts of respective claims 1,2 and 8, that a predetermined terminal coupled to said local area network, is further adapted in accordance to claim 14, that the network 5 termination apparatus is further adapted in accordance to claims 23 and 26 and that, for the method initiated from the local area network side as is described in claim 2, a first terminal coupled to said local area network is further adapted in accordance to claim 13.

In this way, a connection set-up request message or a connection 10 release request message, generated by said network termination apparatus for requesting to set up or to release a connection between a first terminal connected to the local area network and a second terminal connected to the ATM network, is now no longer directed towards a controller within the network termination apparatus, but towards a predetermined terminal, connected to the local area 15 network and which is adapted to terminate an ATM signalling protocol, as is explained in claims 1 and 23. As a result, the complexity and consequently, the cost of the network termination apparatus is significantly reduced.

In a variant of the method, the first terminal is itself adapted to generate this request for setting up or for releasing this connection, and to 20 transmit its own generated LAN connection set-up or release request message towards said predetermined terminal, as is explained in claims 2 and 13. Again in this case the network termination apparatus can be kept simple.

Similarly, signalling protocol messages, transmitted from the ATM network for setting up or releasing a connection between a second terminal 25 connected to the ATM network and a first terminal connected to the local area network, are no longer terminated within the network termination apparatus, but are merely converted in this apparatus into corresponding local area network messages which are then consecutively transferred towards the predetermined terminal connected to the local area network, adapted for terminating the same 30 ATM signalling protocol, as is explained in method claim 8 and network termination arrangement claim 26. Upon receipt of these local area network